

Necati Akyol

2101863

(CARC6005: Projects 06)

The Spolia Auction House



THE SPOLIA AUCTION HOUSE



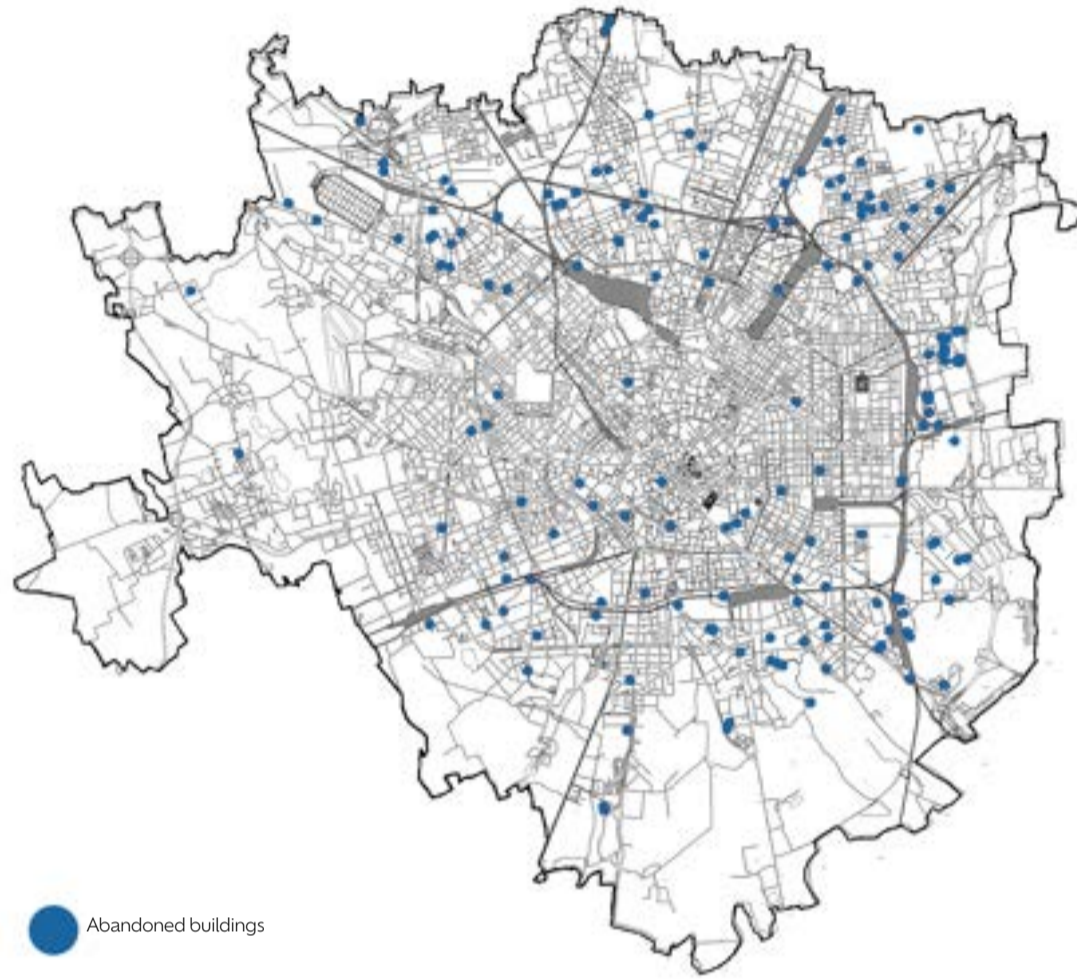
'According to the new plan, buildings are considered "abandoned" if deserted for more than 12 months. The owners of buildings identified as abandoned are given 18 months to start restoration work. If this does not take place, the owner is required to demolish the building (maintaining however the development rights connected with the specific situation). If demolition does not take place, the municipal administration reserves the right to proceed with the demolition directly, and then claim reimbursement from the owners. Defaulting owner.'

(Stefano Moroni , Anita De Franco & Beatrice Maria Bellè (2020))

An auction house for abandoned buildings. Due to the high volume of derelict buildings and structures in Milan. The Spolia auction house aims at giving abandoned materials and components, which are waiting to be demolished, a new life. Each element is from an abandoned site in Milan, by extracting all of these materials and components and auctioning them, the Spolia auction house aims at lowering the carbon footprint in Milan and creating a more economically sustainable market for designers and contractors. My aim is to make Milan a more sustainable and economically stable city.

Site Analysis

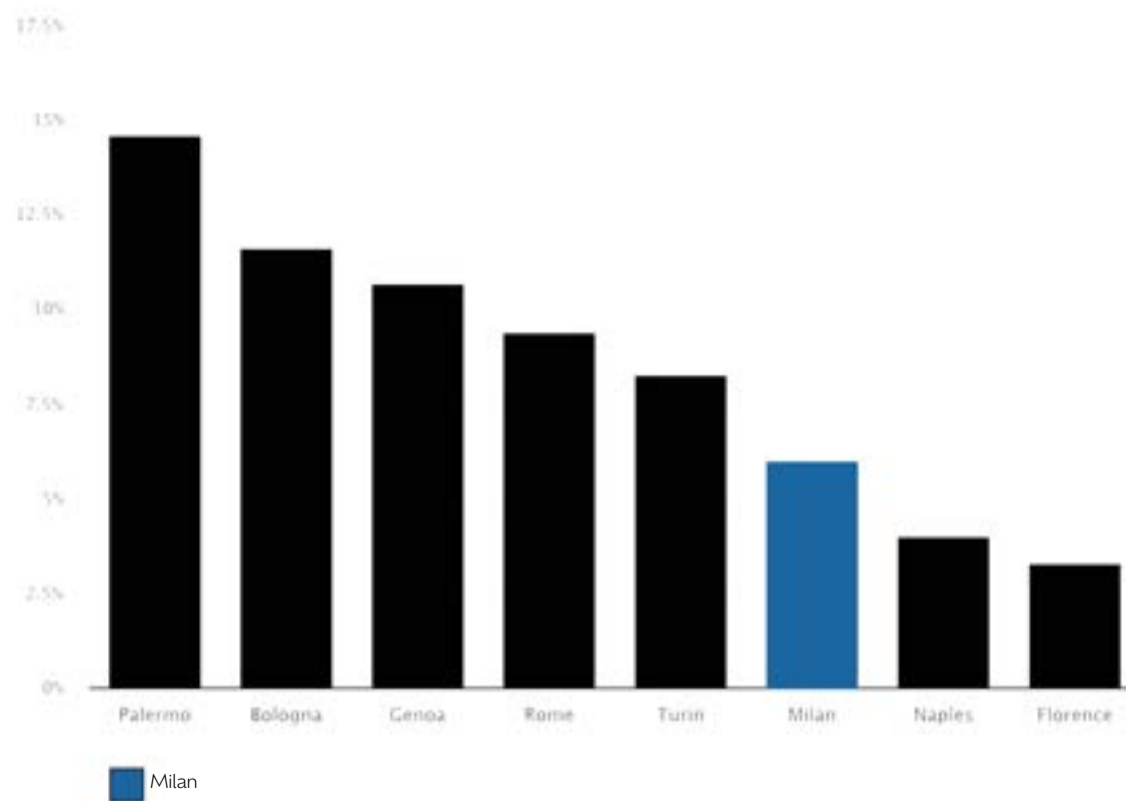
Abandoned Buildings in Milan



Map showing the locations of all the abandoned buildings within the city of Milan. (2021)

Milan is a city which has a vast amount of abandoned buildings. These buildings consist of private, public, residential and commercial, which are all scattered across the metropolitan city.

Derelict residential buildings in Milan

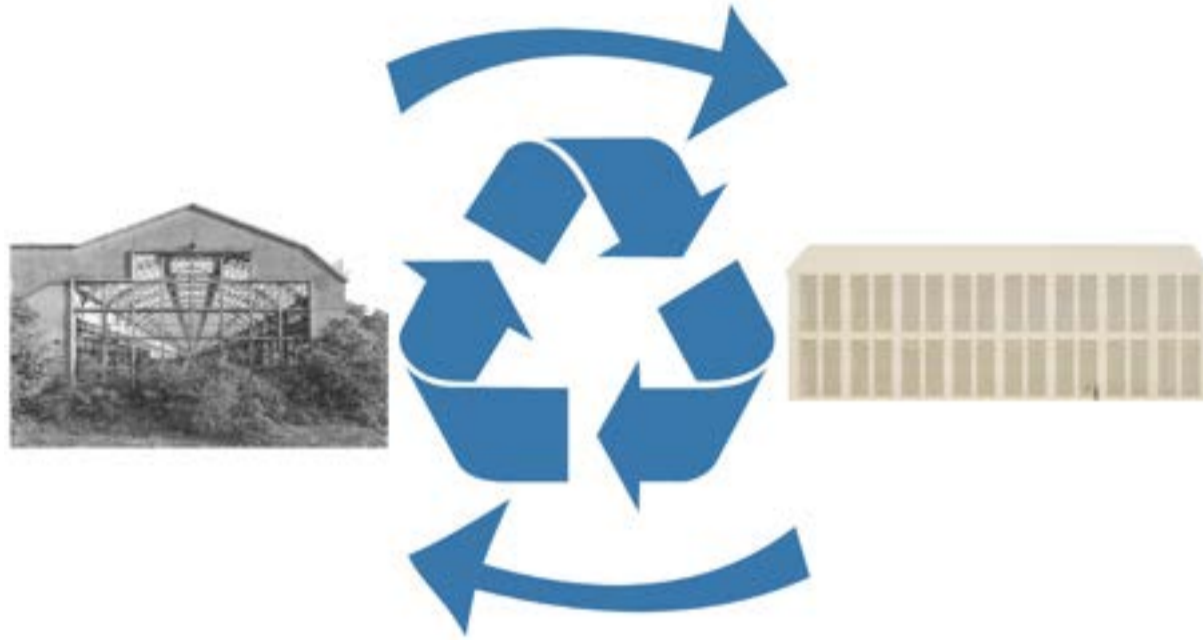


Data graph showing the metropolitan cities with the highest percentage of derelict residential houses within Italy. (2018)

Within Italy there is an issue with high volumes of abandoned residential properties, due to the transition of many citizens moving to the new world (the Americas). Milan is ranked 6th amongst these cities with approximately 7.5% of derelict houses.

The brief

Reusing abandoned building materials and components



Reusing materials and structural components from abandoned buildings which have a short life span left due to the new laws and regulations introduced in Milan, is an effective approach towards lowering carbon emissions and reducing the carbon footprint. The design of the Spolia auction house consists primarily of existing materials and structural components.

Auctioning abandoned materials and structural components



Auctioning building materials and components, allows for a more sustainable and affordable market for designers and contractors. This approach also supports and helps the financial economy of Milan.

Abandoned buildings

Stabilimento Innocenti Lambretta



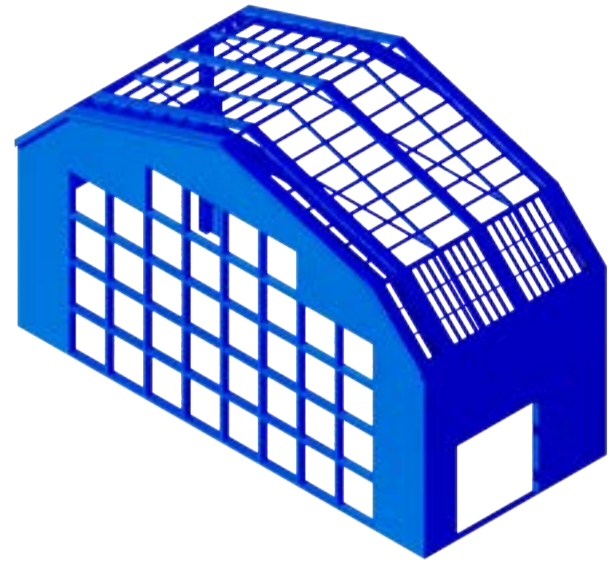
Location: 20134 Milan, Metropolitan City of Milan, Italy

Previous use: Scooter + car manufacturing factory

Abandoned since: 1993

Material: Steel, Concrete

Area: 24,258m² -



Stazione incompiuta di Milano San Cristoforo



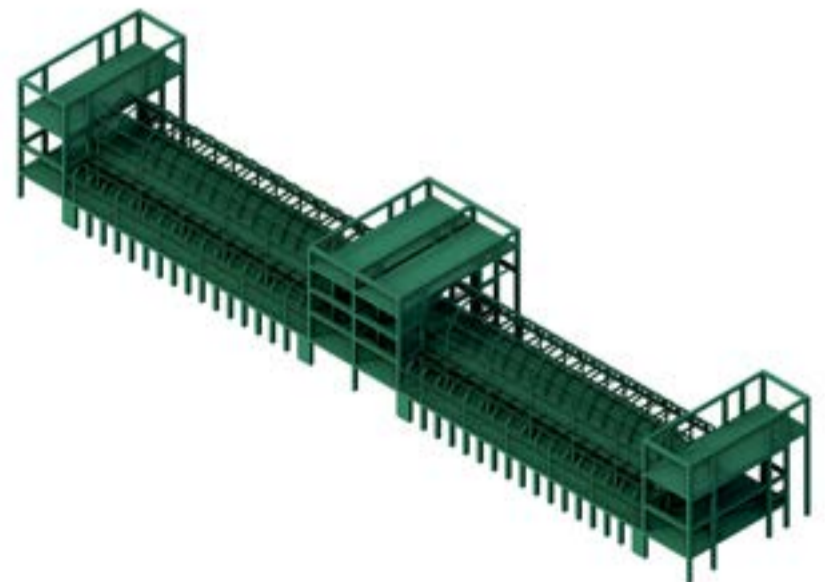
Location: Via Morimondo, 20143 Milano MI, Italy

Previous use: Unfinished project

Abandoned since: 1980s

Material: Steel, Concrete

Area: 1,920m² -



Abandoned buildings

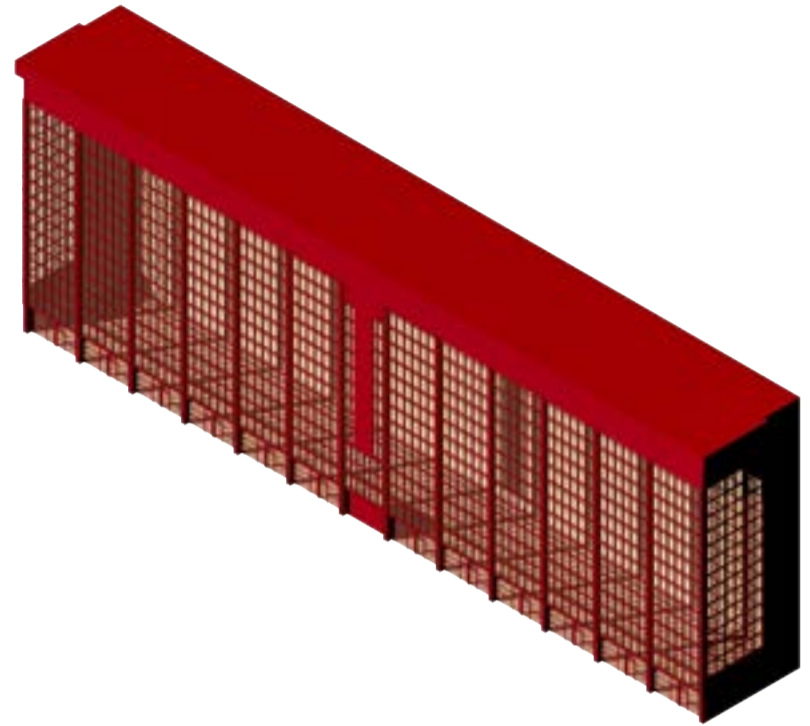
Via medici del vascello 40



Location: 20138 Milano MI, Italy

Material: Steel, Concrete

Area: 1020m² -



La Rinascita di Cascina Gérola



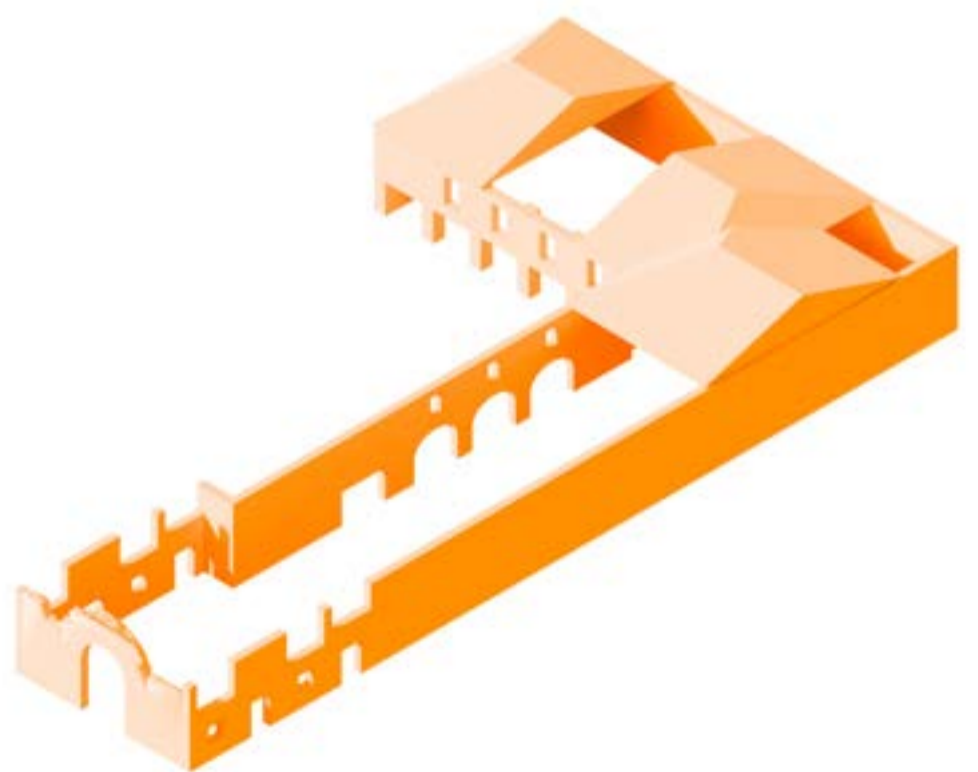
Location: Via Sant'Arialdo, 91, 20139 Milano MI, Italy

Previous use: Farmhouse for dairy production

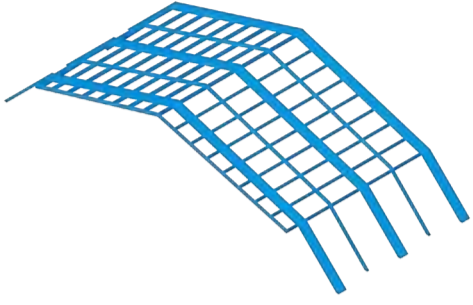
Abandoned since: 1980s

Material: Brick, wood

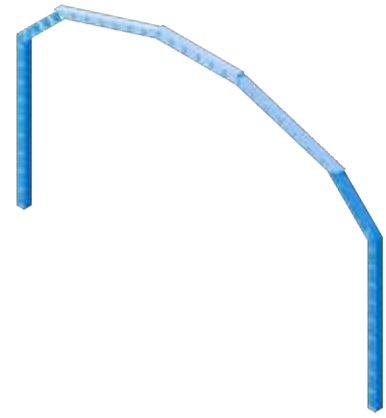
Area: 684m² -



Building components



Can be used as secondary roof structure.



Can be used as the primary structure.



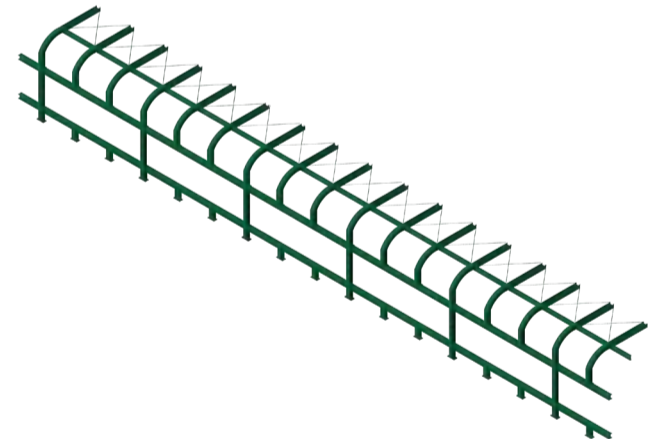
Can be used as columns and beams.



Can be used as columns and beams or concrete slabs can be cut to be used as wall finishes.



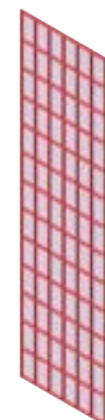
Can be used for interior spaces to create arches or can be used as exterior openings as arches.



Can be used for interior spaces or can be used to create corridors.
Can also be used to create outdoor spaces.



Can be used as columns or beams.



Can be used for the facade.

Precedents



1.



2.



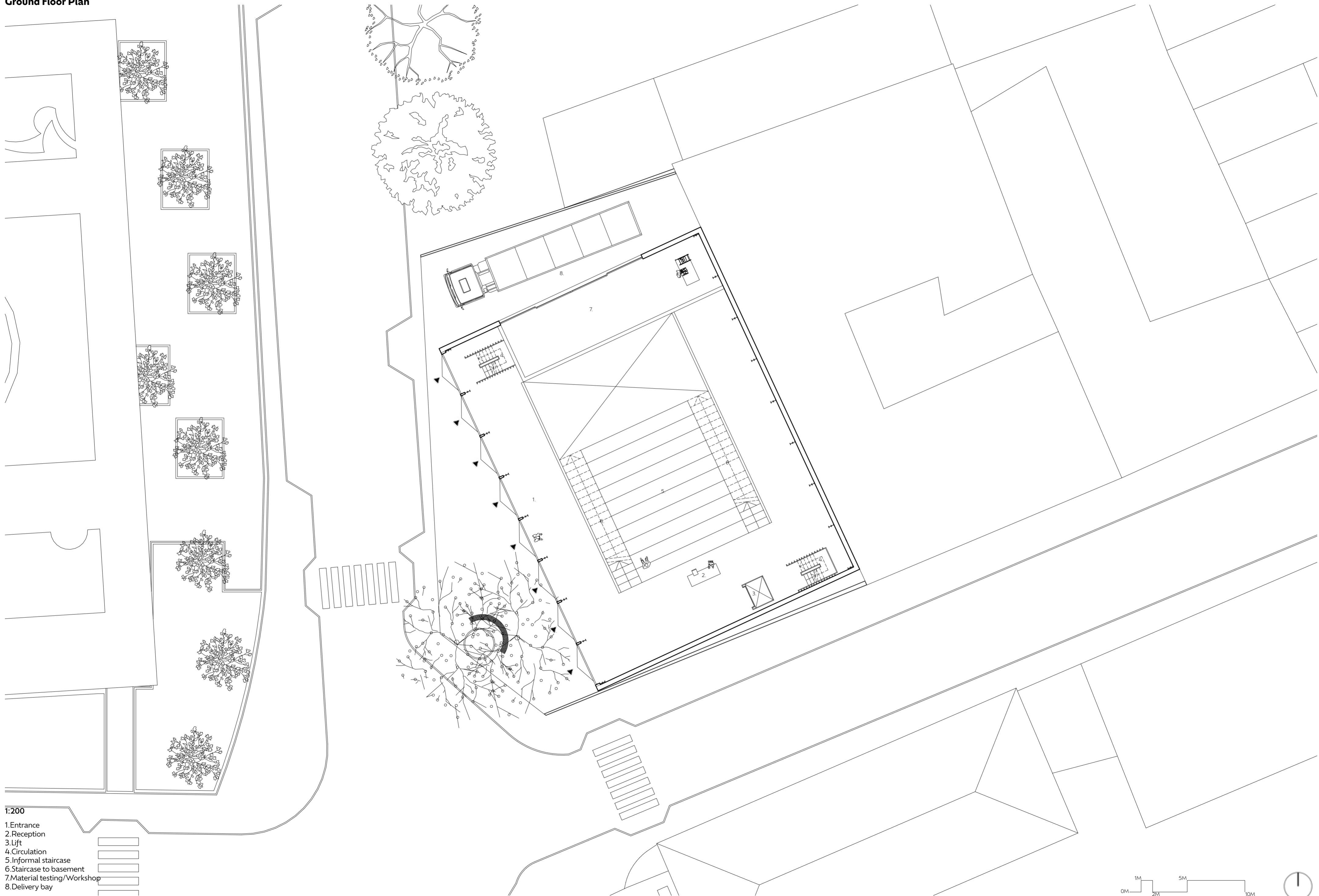
3.



4.

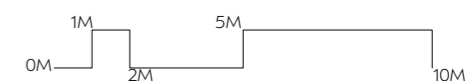
- 1.Carmody Groarke - Hill House
- 2.A6 - MK Gallery
- 3.YN Studio - Bradbury Works
- 4.Yasutaka Yoshimura - Kindergarten

Ground Floor Plan

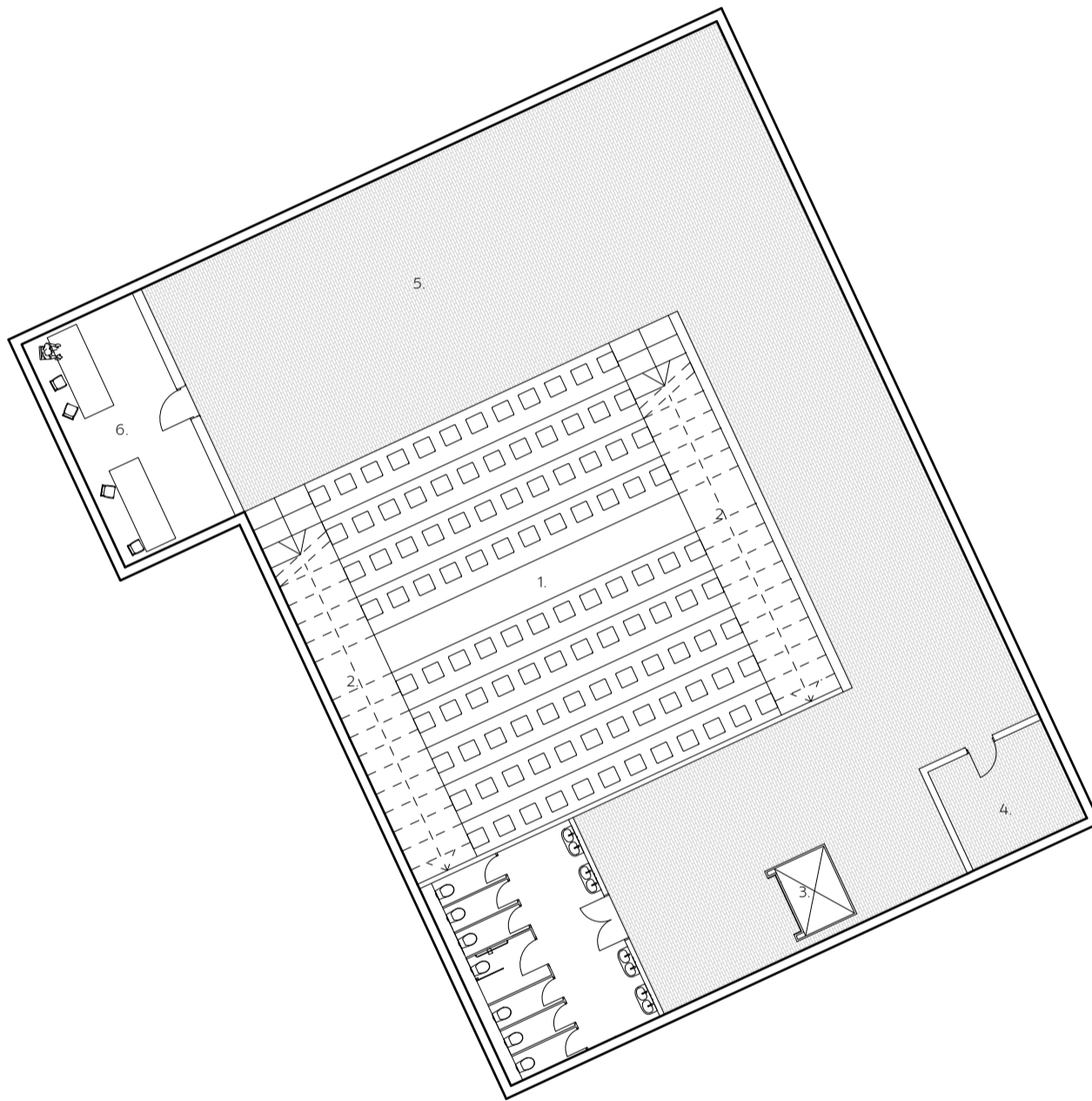


1:200

- 1. Entrance
- 2. Reception
- 3. Lift
- 4. Circulation
- 5. Informal staircase
- 6. Staircase to basement
- 7. Material testing/Workshop
- 8. Delivery bay

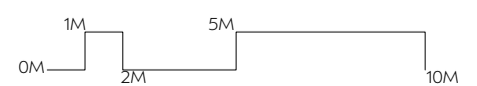


Basement Floor Plan

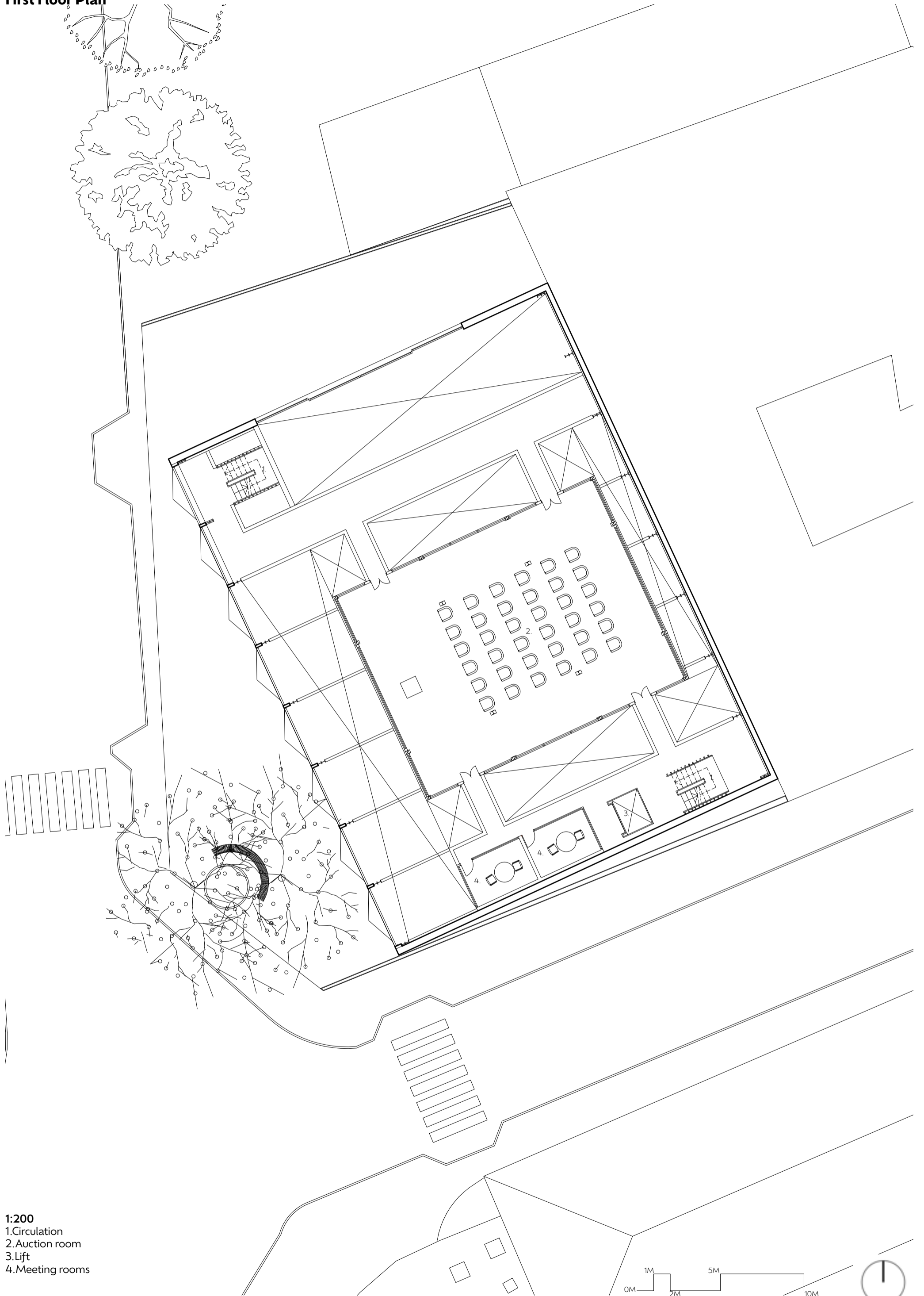


1:200

- 1. Informal staircase
- 2. Staircase to ground floor
- 3. Lift
- 4. Storage room
- 5. Exhibition hall
- 6. Scanning office

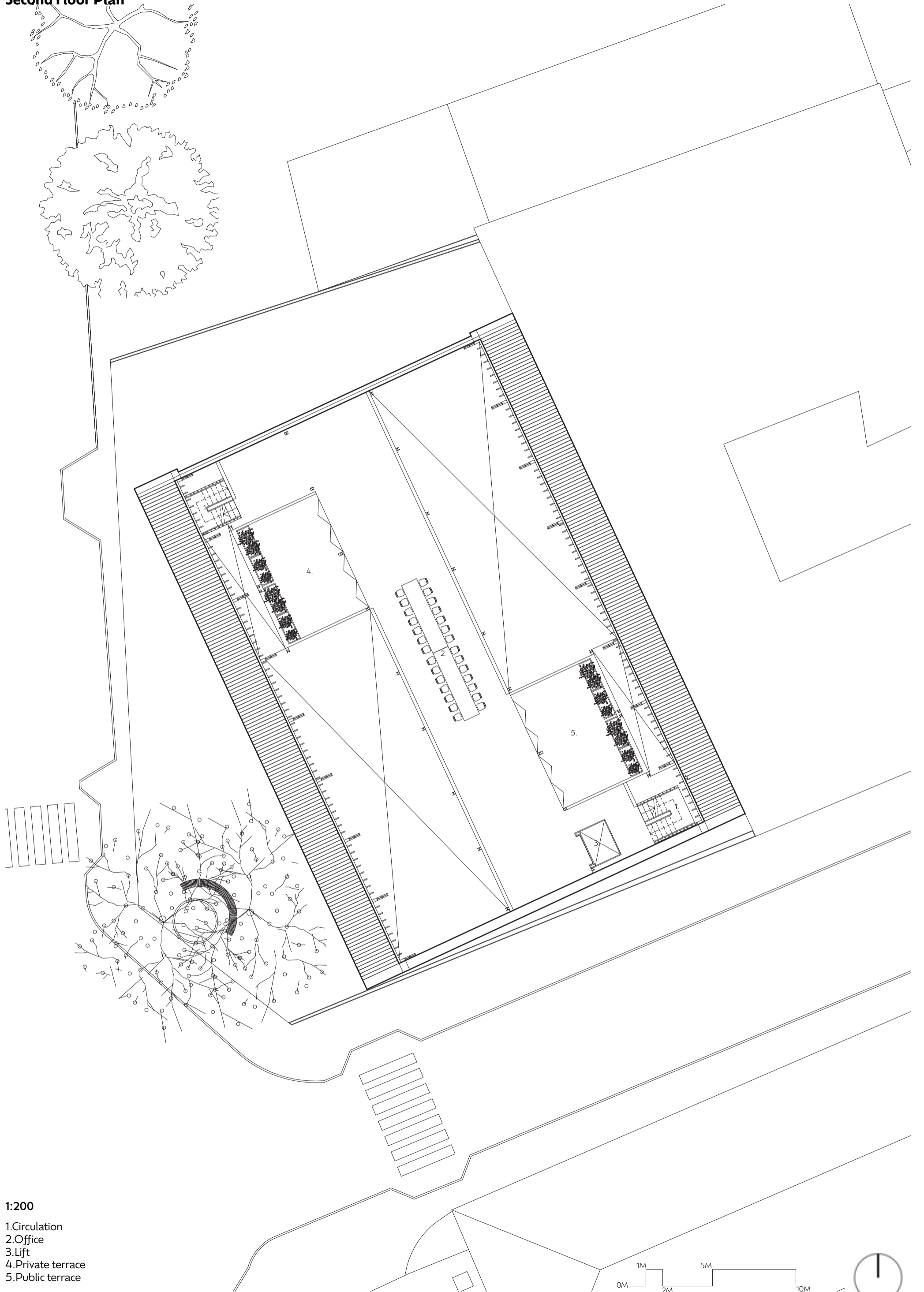


First Floor Plan



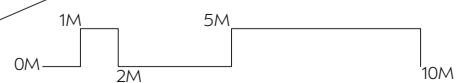
- 1:200**
- 1. Circulation
- 2. Auction room
- 3. Lift
- 4. Meeting rooms

Second Floor Plan



1:200

- 1.Circulation
- 2.Office
- 3.Lift
- 4.Private terrace
- 5.Public terrace



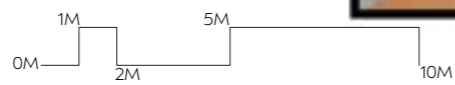
Elevations



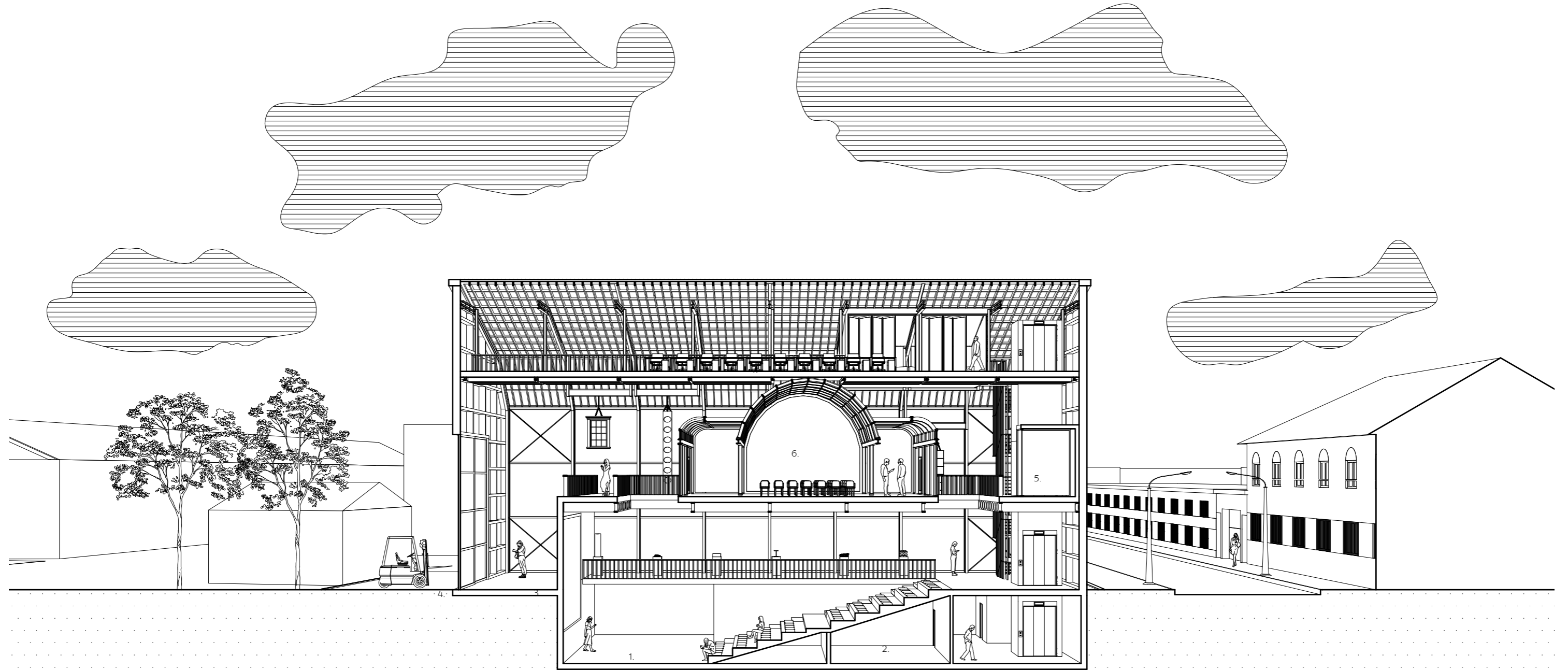
West elevation 1:200



North elevation 1:200

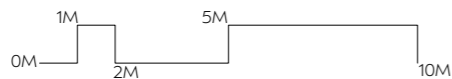


Longitudinal Section A-A

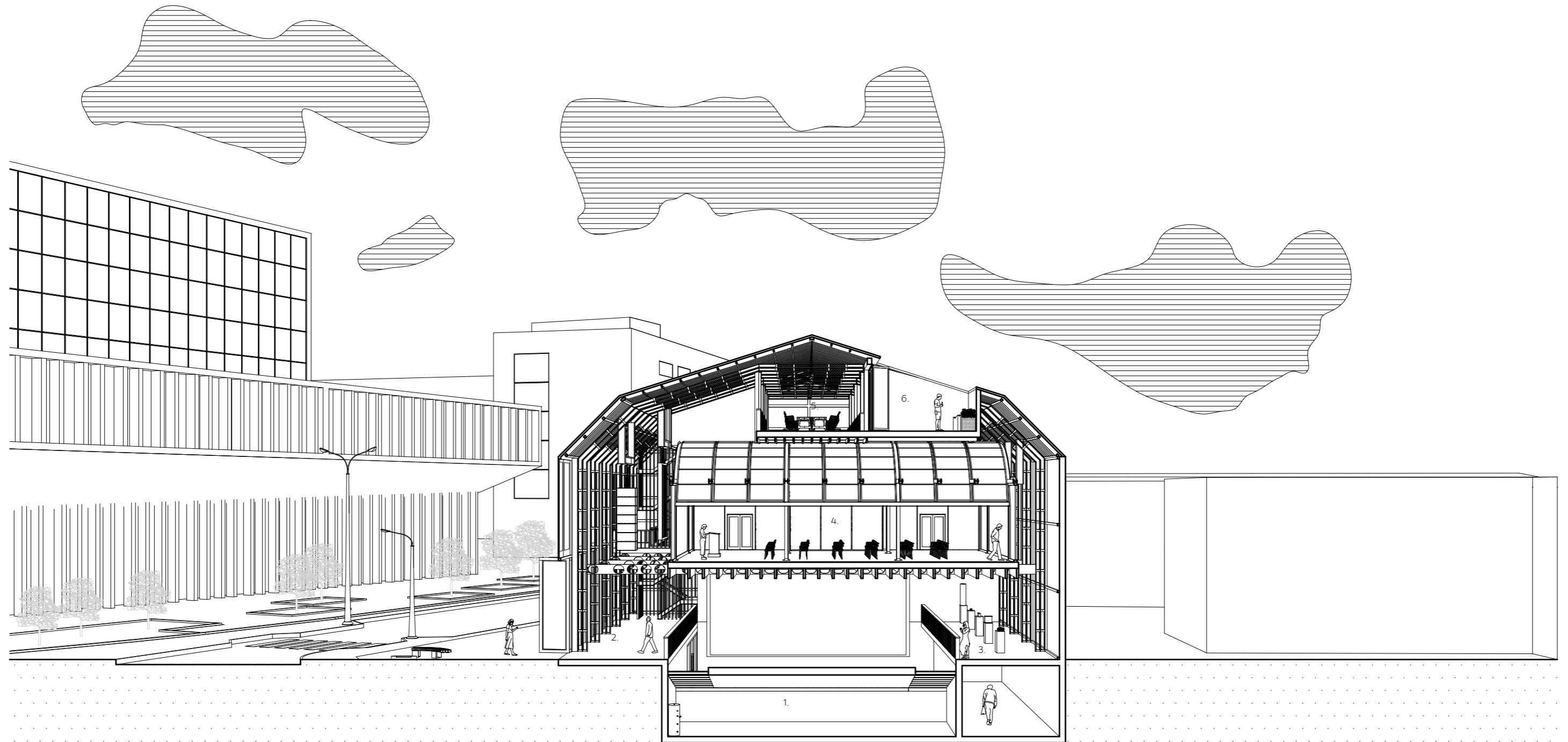


1:200

- 1. Exhibition hall
- 2. Plant room
- 3. Material testing/Workshop
- 4. Delivery bay
- 5. Meeting room
- 6. Auction Room
- 7. Office

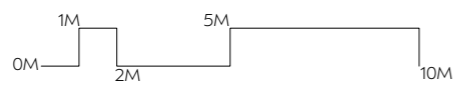


Transverse Section B-B



1:200

- 1.Plant room
- 2.Entrance
- 3.Exhibition space
- 4.Auction room
- 5.Office
- 6.Terrace



Longitudinal Section C-C



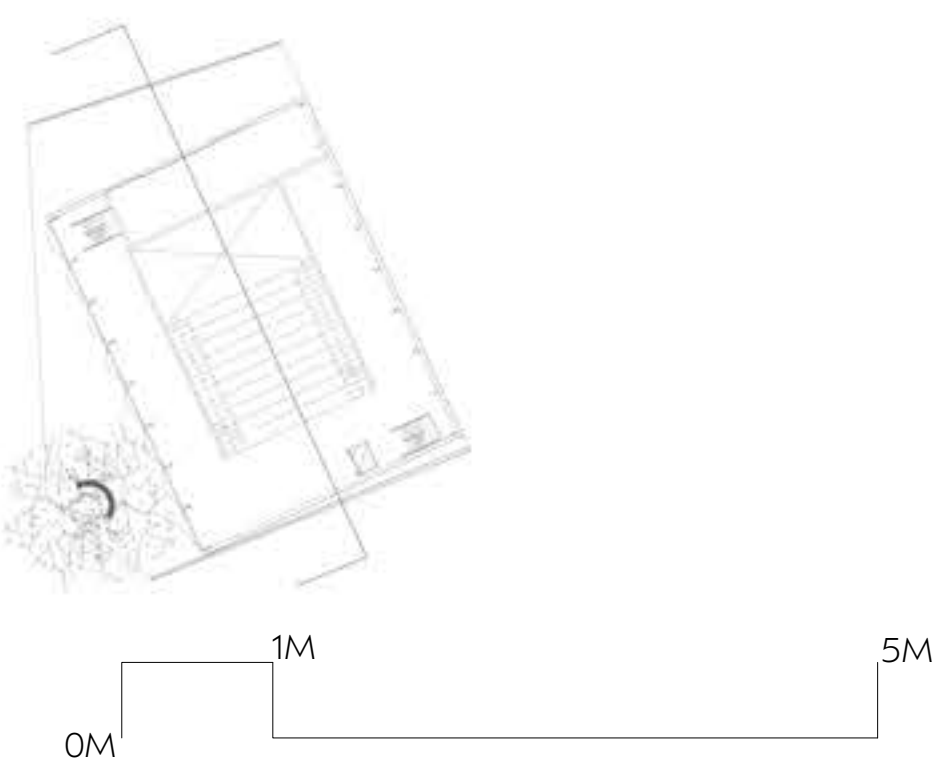
1:50

Spaces

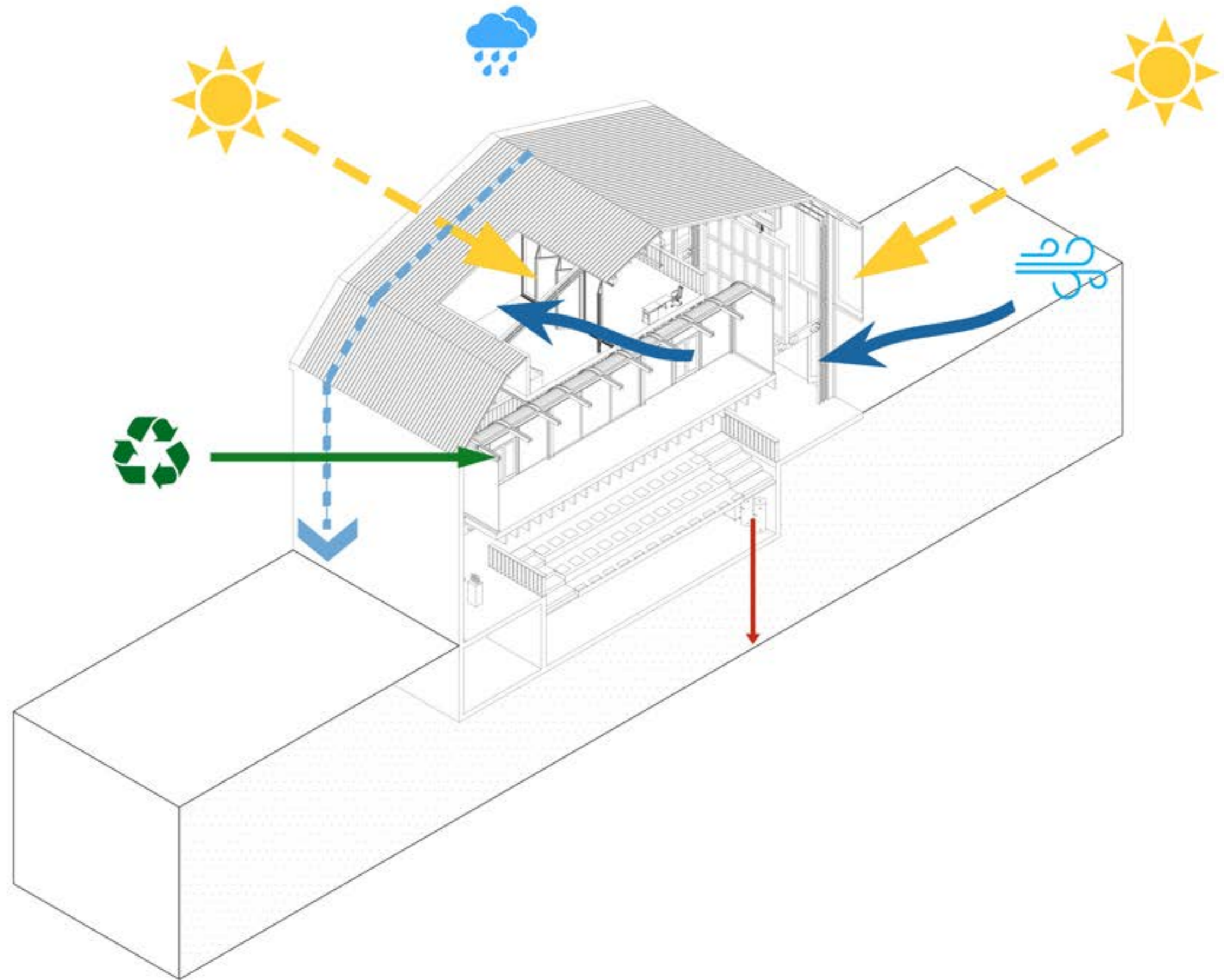
- 1. Exhibition hall
- 2. Plant room
- 3. Reception
- 4. Client meeting room
- 5. Auction room
- 6. Material testing/Workshop
- 7. Office






Structure

- 8. Primary structure (Blue) - Lambretta factory
- 9. Auction room (Green) - Unfinished train station by Aldo Rossi

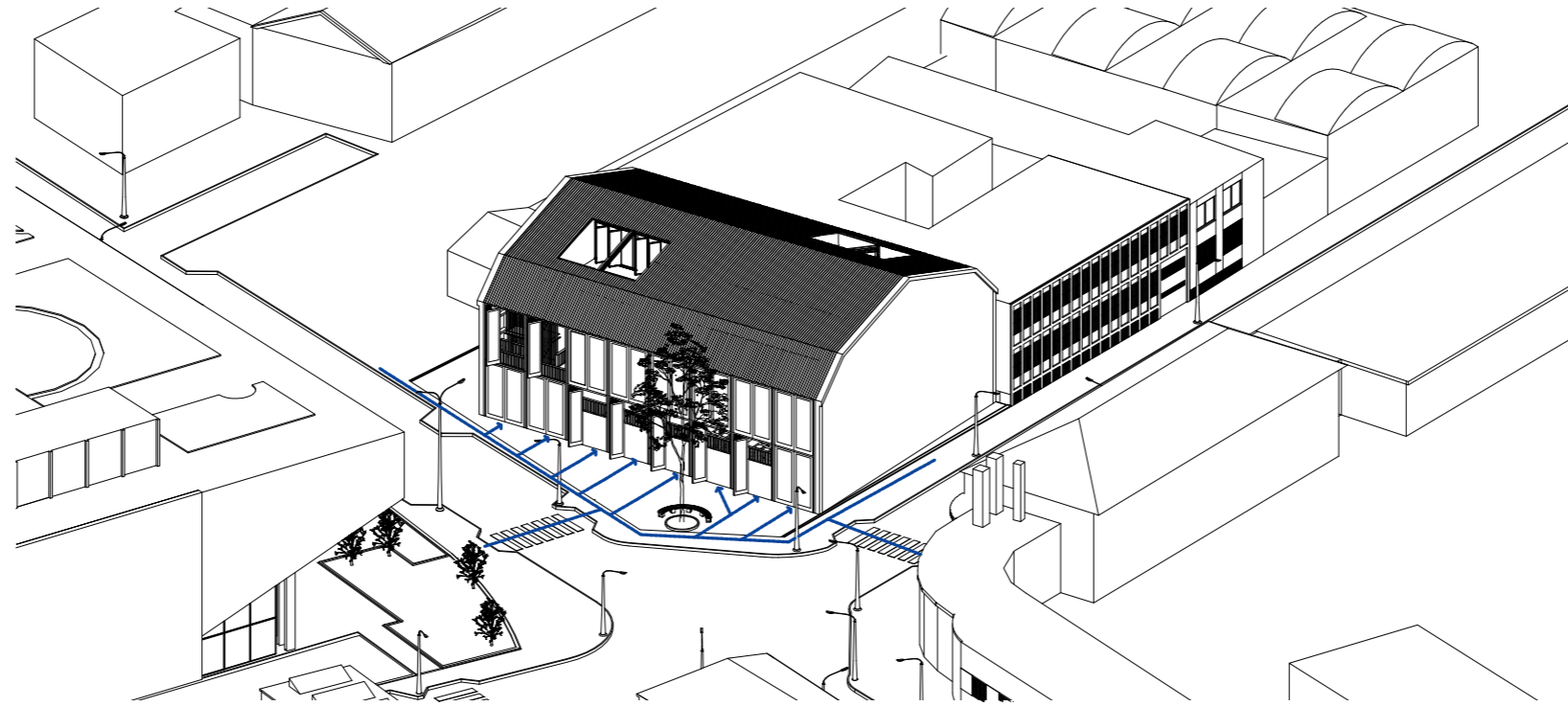


Environmental Strategy

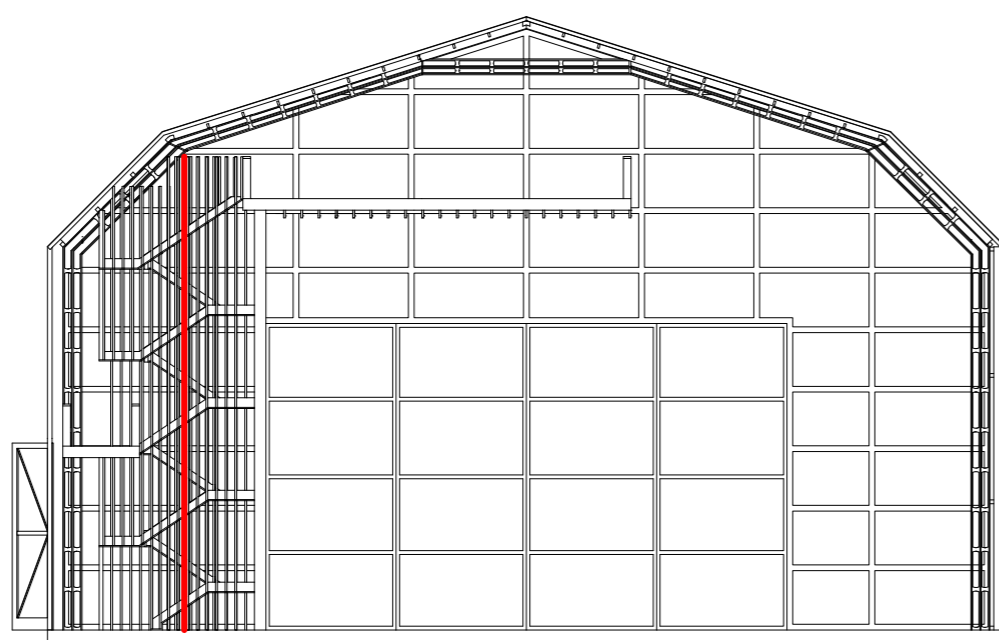


-  Cross Ventilation
-  Using existing materials to reduce carbon emissions and footprint
-  Direct sunlight from openings
-  Pitched roof to allow rainwater to fall off
-  Ground source heat pump to supply heating and hot water to building

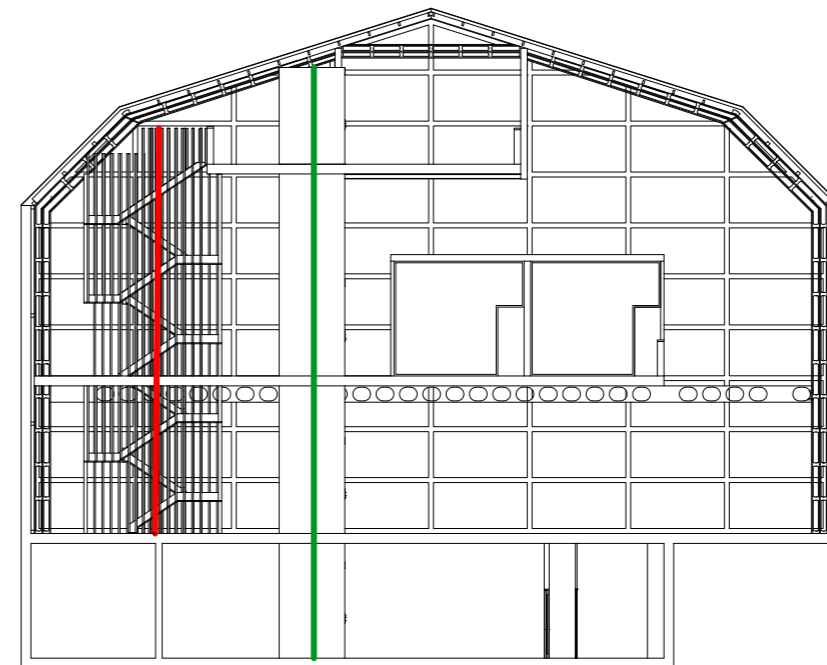
Accessibility Strategy



The building can be accessed and exited across the whole facade.

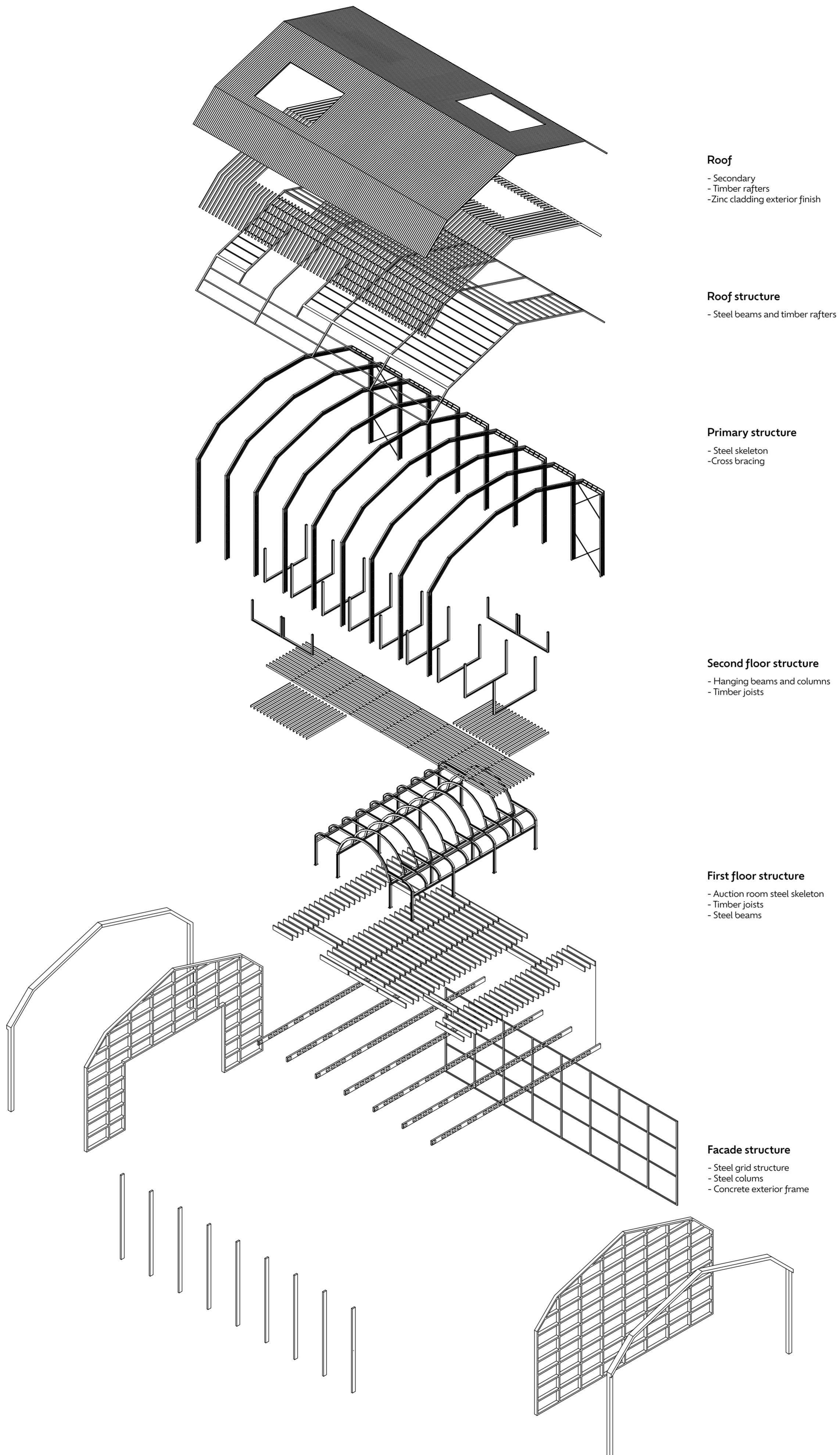


Staircase closest to exit point.



Staircase from opposite side of the building and lift to access all floors.

- Access to building
- Staircase
- Lift



Roof

- Secondary
- Timber rafters
- Zinc cladding exterior finish

Roof structure

- Steel beams and timber rafters

Primary structure

- Steel skeleton
- Cross bracing

Second floor structure

- Hanging beams and columns
- Timber joists

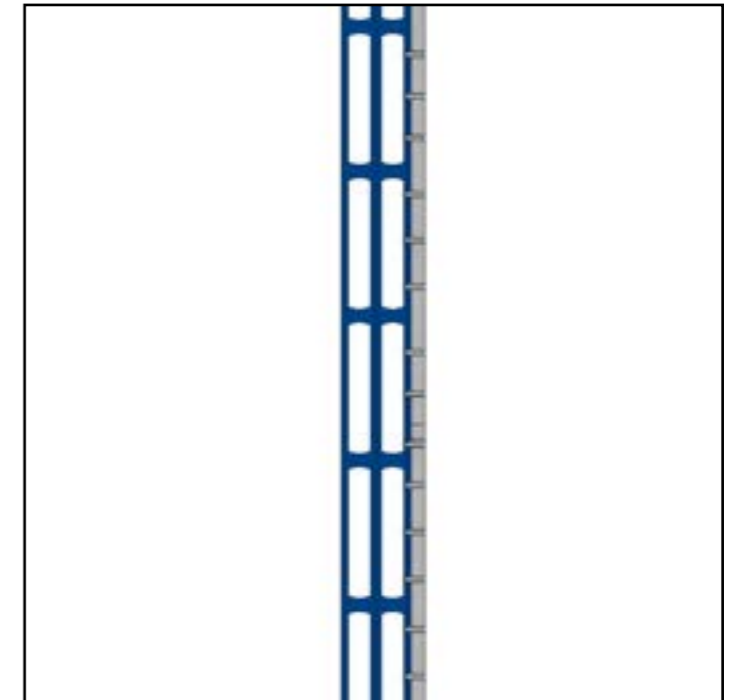
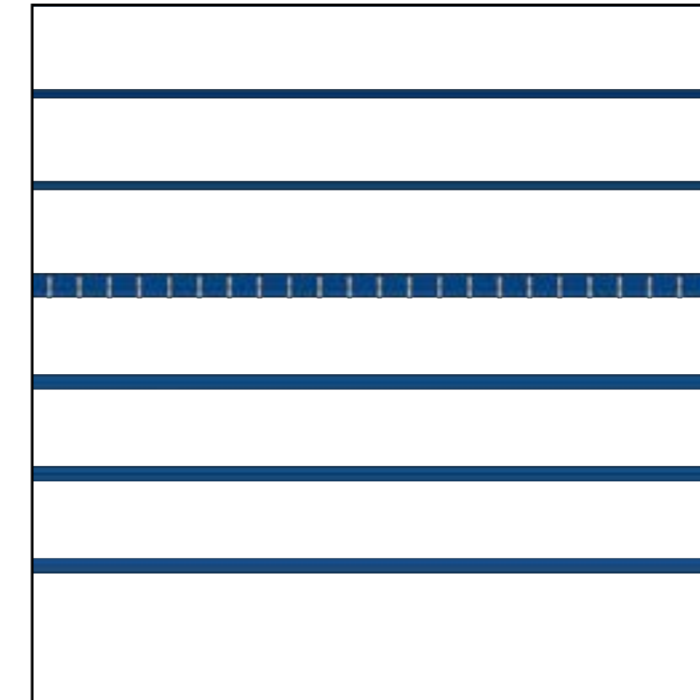
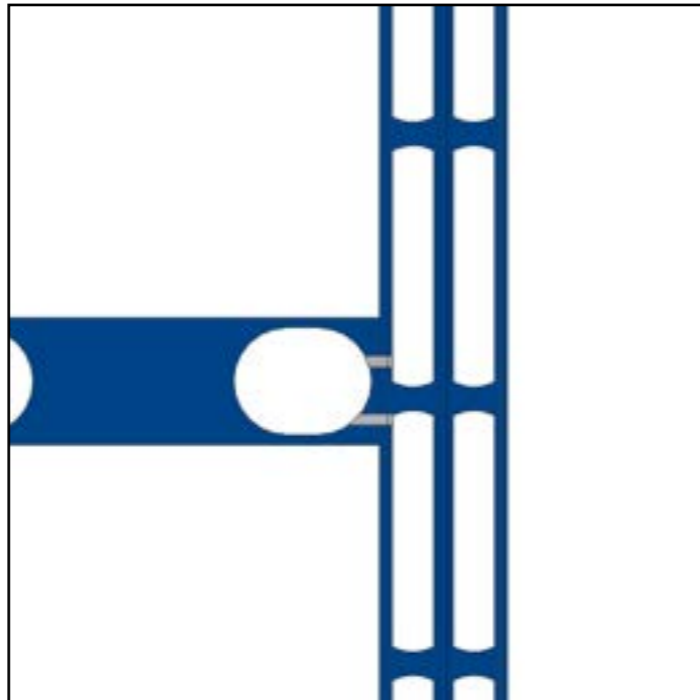
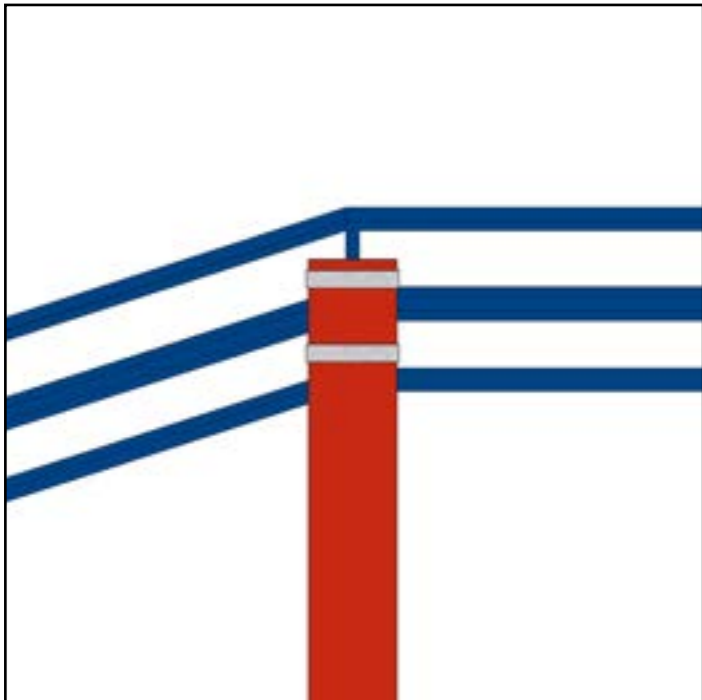
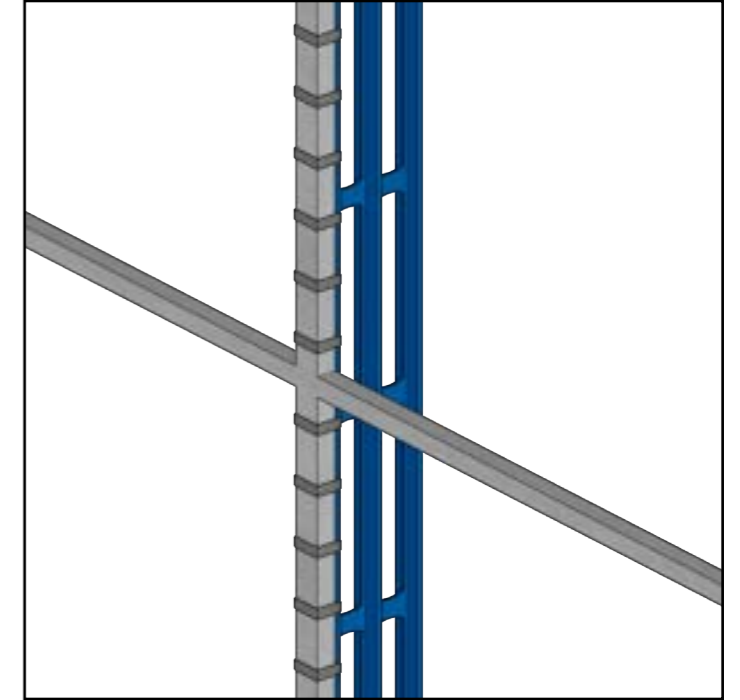
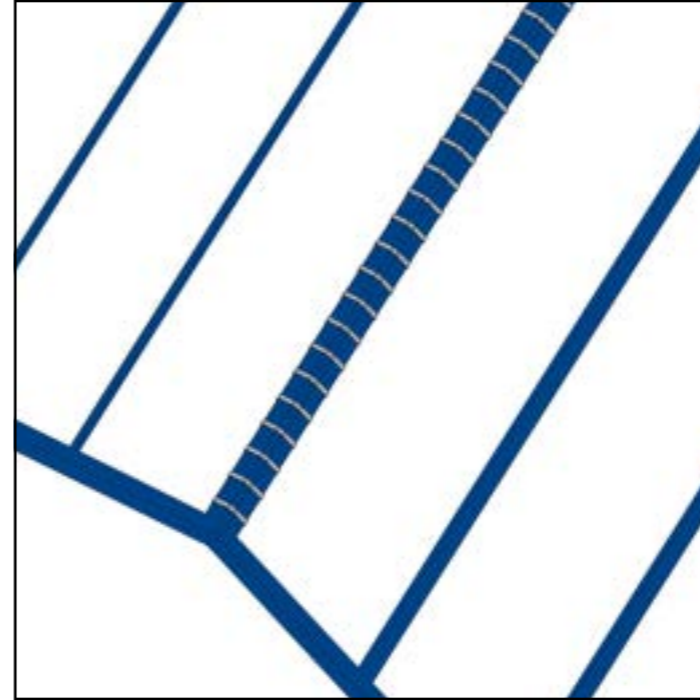
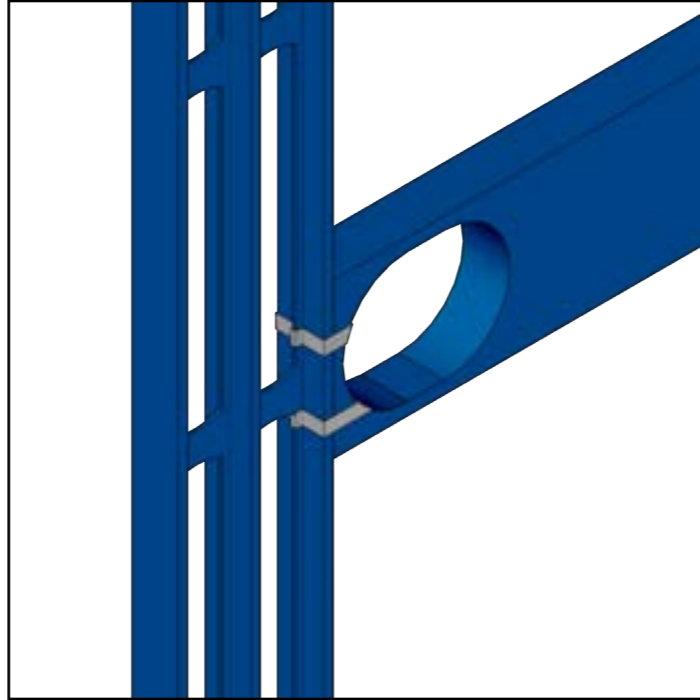
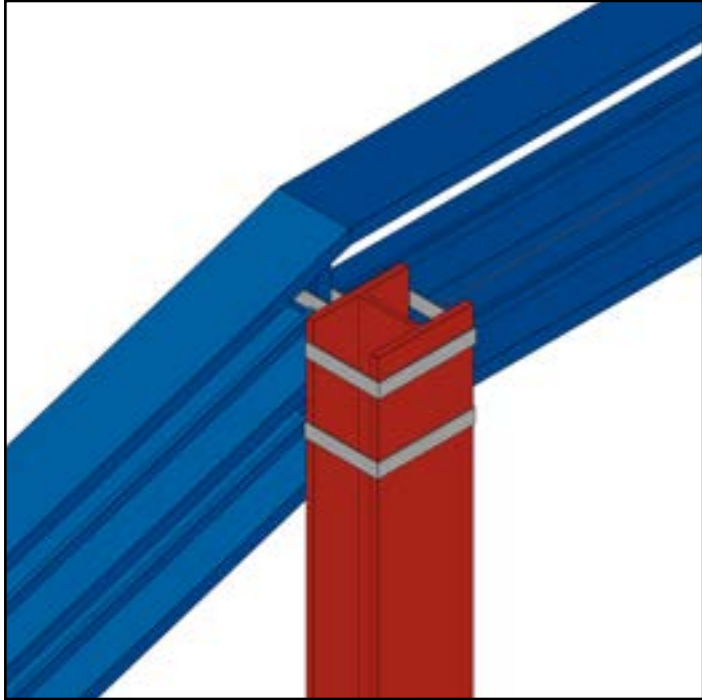
First floor structure

- Auction room steel skeleton
- Timber joists
- Steel beams

Facade structure

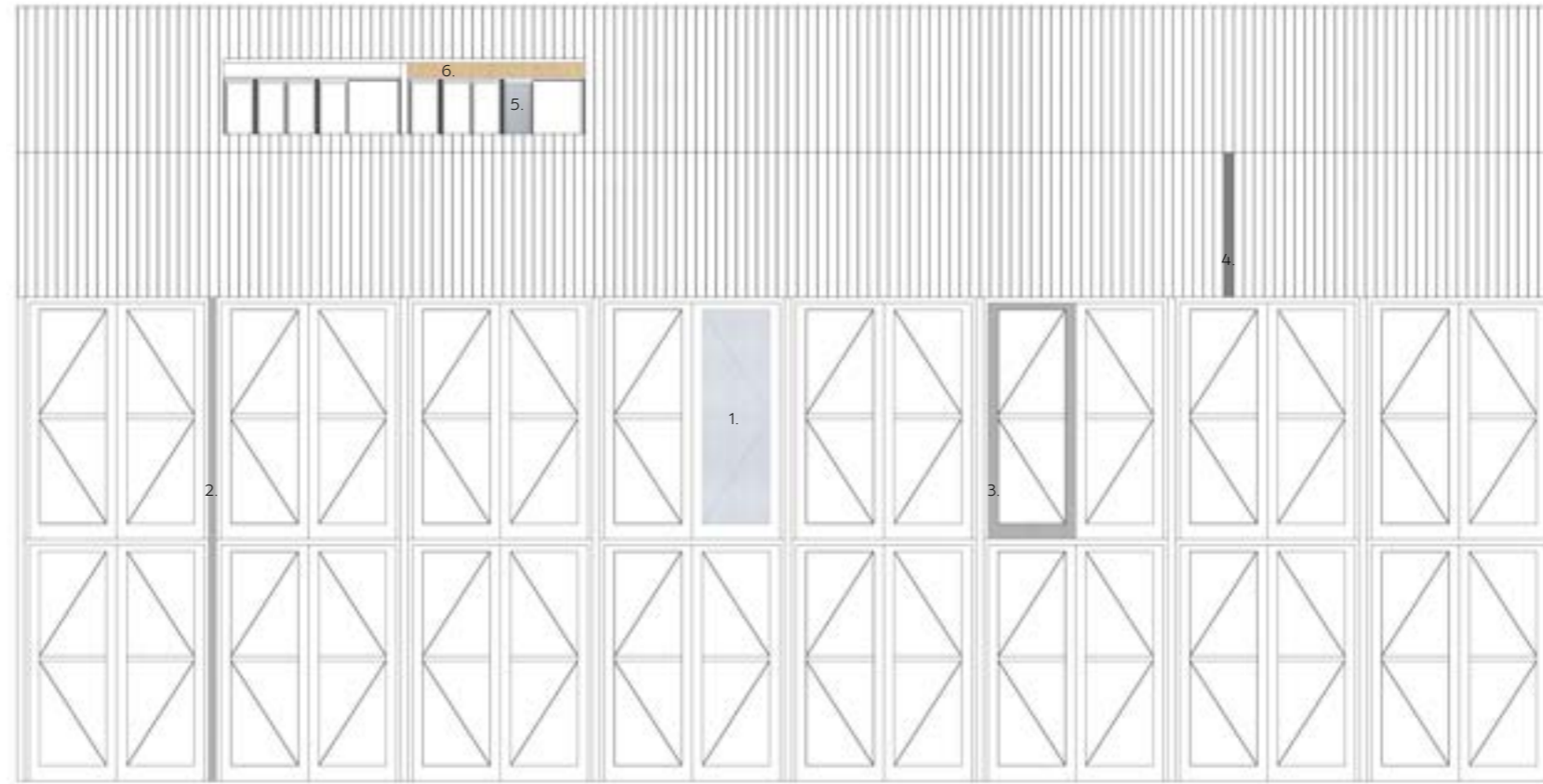
- Steel grid structure
- Steel columns
- Concrete exterior frame

Structural Assembling Strategy



All structural components are assembled using steel cable straps, which enables each component to have an after-life without causing any destruction to the component.

Materiality Strategy



Polycarbonate for facade, as polycarbonate is sustainable can retain heat well, has a very light-weight aesthetic and is also fire resistant.

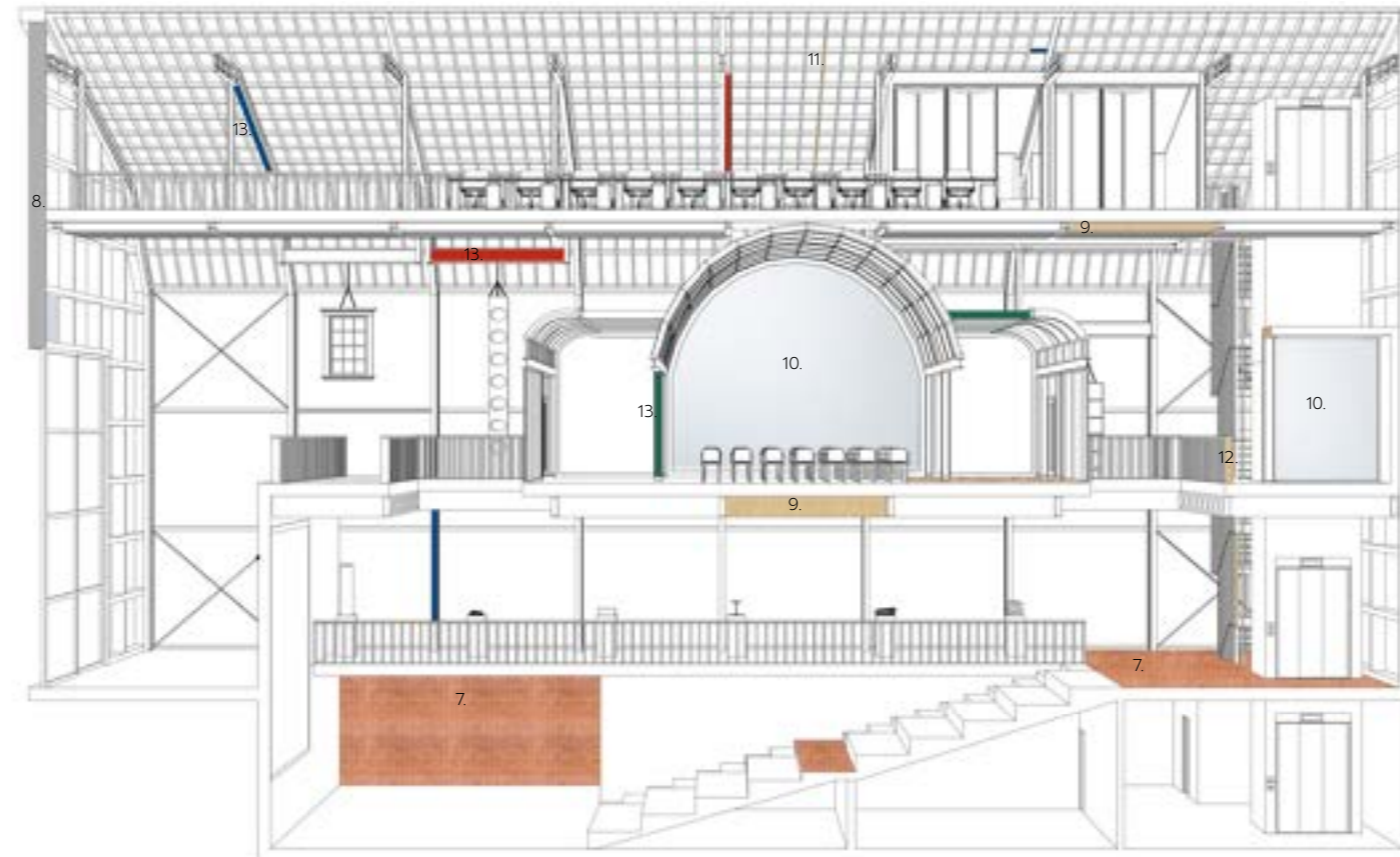
Structure consists mainly of existing components as it is sustainable to re-use existing material and also steel is durable.

Facade + Terrace Materiality

1. Polycarbonate sheets
2. Steel frame - for facades
3. Steel door frame
4. Zinc roofing sheets
5. Triple glazed glass - terrace bi-fold doors
6. Timber walls

Interior Materiality

7. Brick wall + floor (existing material)
8. Steel frame - for structural support
9. Timber joists - for structural support
10. Triple glazed glass - for insulation and acoustics
11. Timber rafters - roof structure
12. Timber balustrades
13. Coloured steel (existing material)



Embodied Carbon Calculation

Embodied Carbon Calculation (Global Standard EN15978) (Stages A1-A5)

Material description	Density	Embodied carbon A+C KgCO2e/m3	Volume of material Used m3	TOTAL Embodied Carbon Materials
Aluminium (polyester powder coated)	2700	36484	0	0
Aluminium (virgin)	2700	31540	0	0
Aluminium (general)	2700	22814	0	0
Brass	8700	22306	0	0
Galvanised structural steel	7850	17276	1	17276
Aluminium (bar and rod)	2700	16636	0	0
Glass fibre Reinforced plastic (GFRP)	1500	14315	0	0
Glass fibre	2500	13327	0	0
Hot rolled structural steel	7850	11176	0	0
Intumescent paint for steel	50	5653	0	0
PVC	1380	2814	0	0
Flat glass	2500	2823	0	0
Clay Bricks	2400	1271	0	0
Viroc® Cement Bonded Particle Board	1350	948	0	0
Granite/Basalt/Marble	2600	541	0	0
Concrete 40 Mpa (unreinforced)	2400	495	0	0
Concrete Blocks 7.3MPa	2050	372	0	0
Bitumen Elastomer	1000	343	0	0
Light concrete (autoclaved aerated)	1000	338	0	0
Plasterboard	720	298	0	0
Limestone	2500	176	0	0
Natural Stone	2500	176	0	0
Sandstone	2400	171	0	0
Icyene (polyurethane)	30	142	0	0
Vapour barrier (polyethylene)	900	128	0	0
Fiber Felt	25	118	0	0
Rockwool	45	35	0	0
Thermacork Insulation	115	-133	0	0
Sustainably sourced MDF	700	-299	0	0
Laminated Bamboo	750	-349	0	0
Sustainably sourced plywood	620	-377	0	0
Sustainably sourced CLT (spruce)	470	-484	0	0
Sustainably sourced pine	420	-489	0	0
Sustainably sourced Douglas Fir	530	-549	63.92	-35086
Sustainably sourced Oak	770	-782	0	0

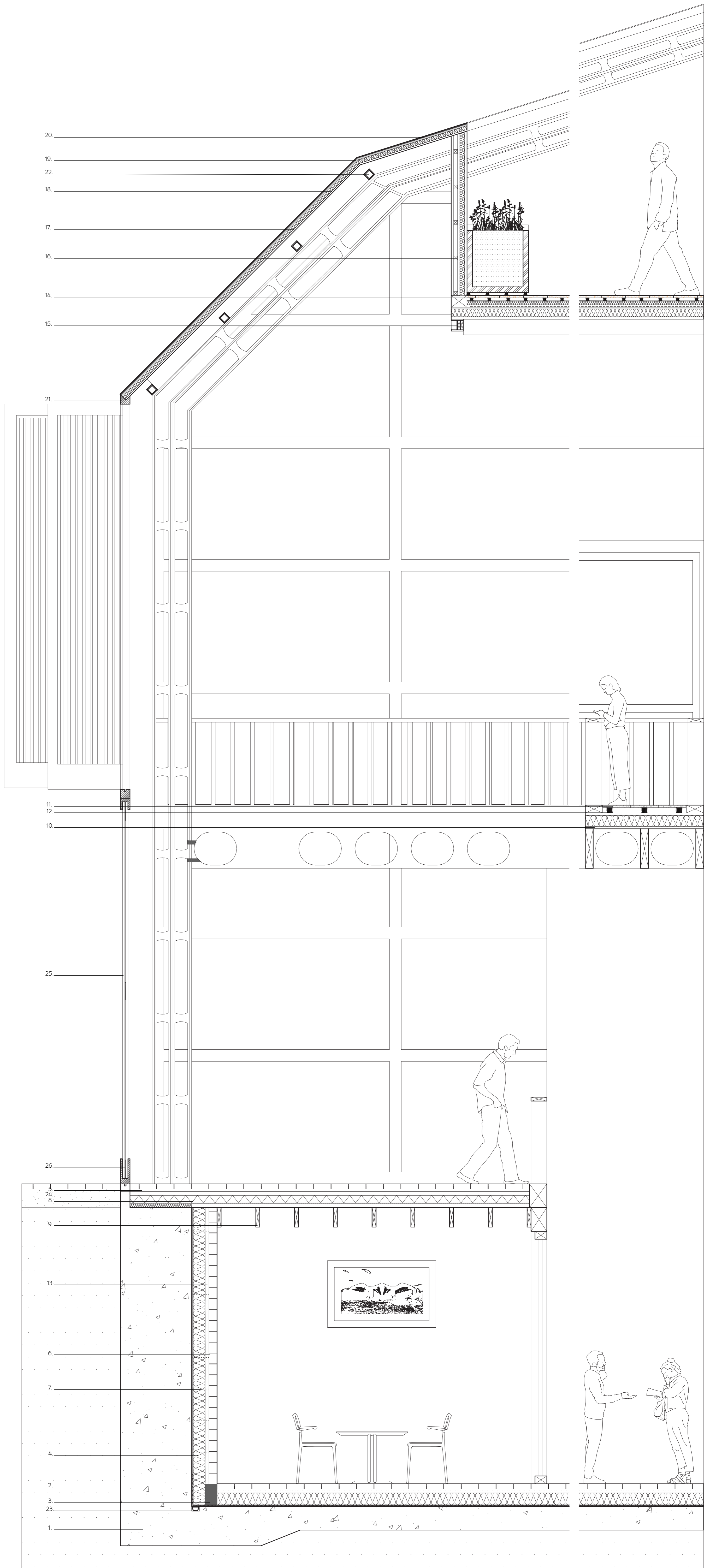
-17,809	0	#DIV/0!
kgCO2e TOTAL	TOTAL m2	kgCO2e/m2 TOTAL

Only fill in the purple boxes (volume of material used and Total m2)

RIBA 2030 CLIMATE CHALLENGE
< 625 kgCO2e/m2

As the structure and most components consist of existing materials, the logistics (transportation of existing components) would need to be calculated separately.

Bay Study



- 1:25**
1. Concrete
 2. Delta membrane
 3. Concrete block
 4. Insulation
 5. Screed
 6. Brick
 7. Brick ties
 8. Damp proof membrane
 9. Timber Joist
 10. Plywood
 11. Terazzo tile
 12. Pedestal
 13. Cavity wall
 14. Fosso tile
 15. Steel beam
 16. Baton
 17. Support structure
 18. Vapor control membrane - 125microns
 19. Separation layer
 20. Zinc roof sheeting
 21. Steel
 22. Secondary structure
 23. Drainage tunnel
 24. Concrete Sand
 25. Polycarbonate sheeting
 26. Steel bracing



Interior View



Entrance

Interior Views



Exhibiton hall



Staircase

Interior Views



Auction room



Office

Exterior View

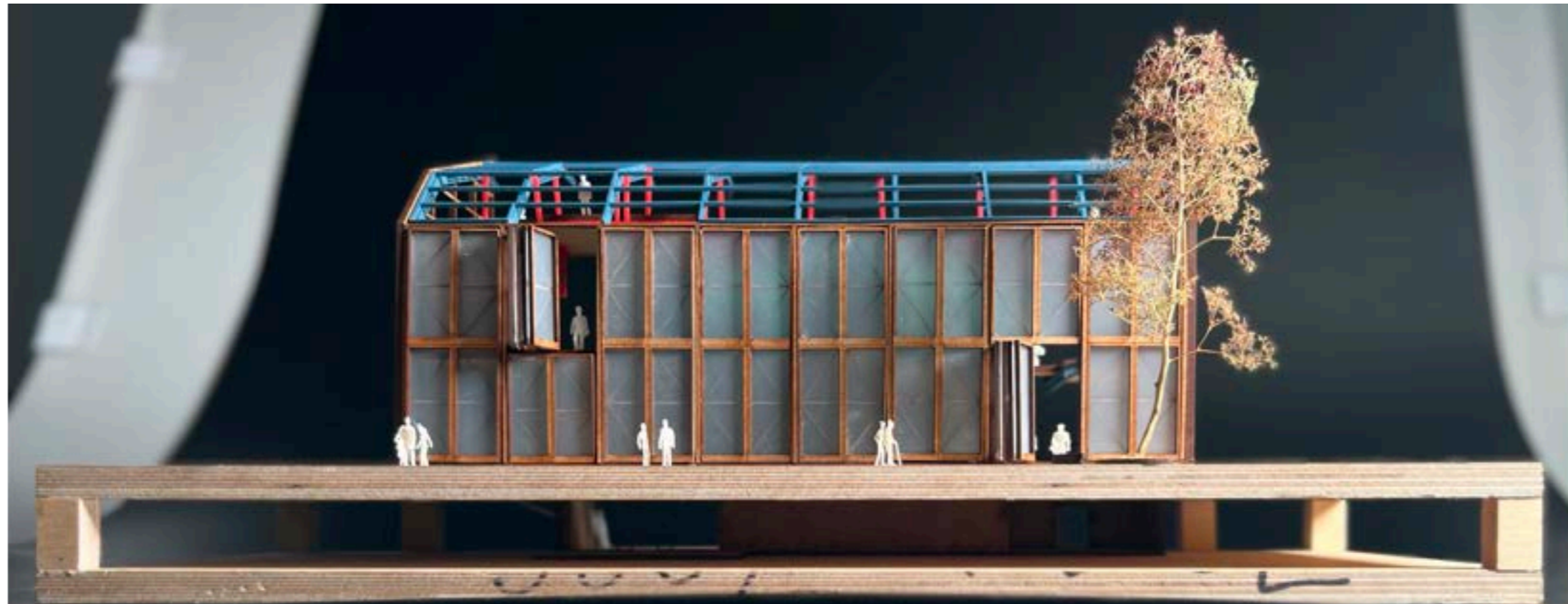
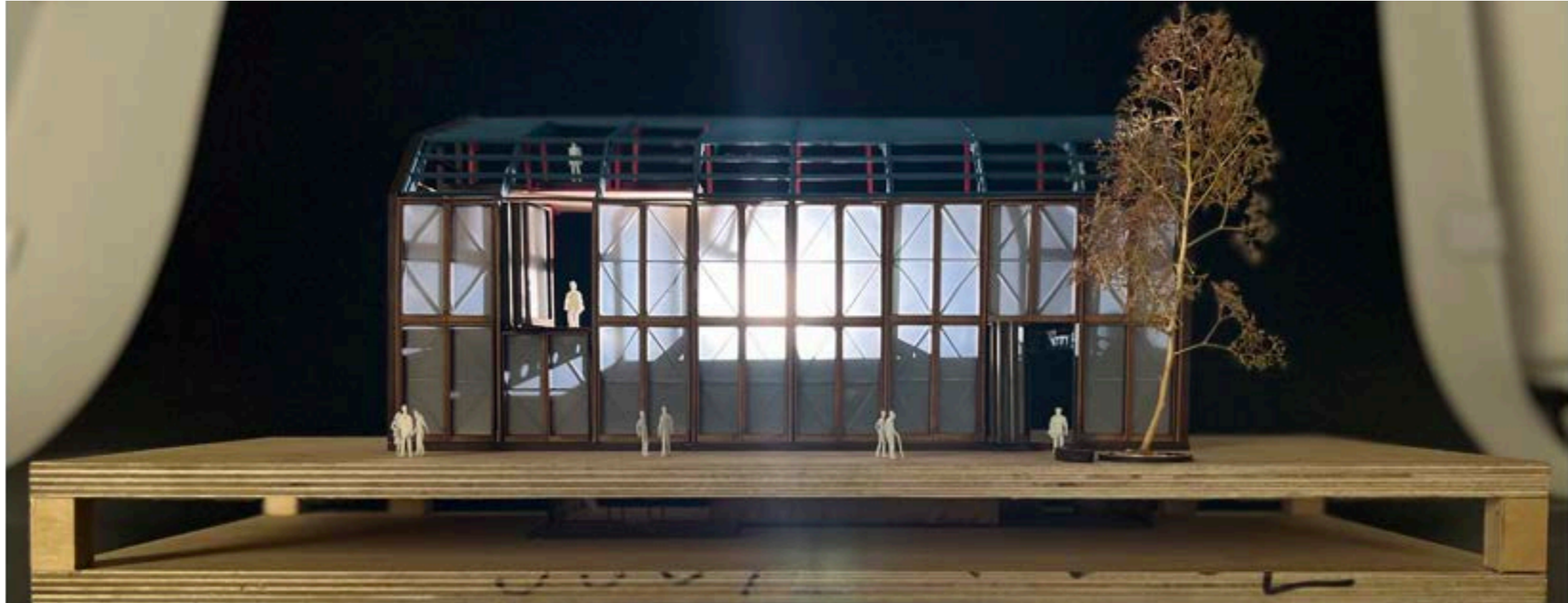


Model



1:100

Model



1:100

Model

